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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,817	10/20/2003	Takahisa Ikeda	03604/LH	4376

1933 7590 11/16/2005

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EXAMINER


VO, ANH T N

ART UNIT PAPER NUMBER

2861

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/689,817	Applicant(s) IKEDA, TAKAHISA	
	Examiner Anh T.N. Vo	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL REJECTION

The objection of claim 1, the rejection under 35 USC, 112 second paragraph, and the claim rejection over Brooks et al. (US Pat. 6,557,990) and Altendorf (US 6,557,990) are withdrawn in view of the amendments to the claims.

CLAIM REJECTIONS

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Nowell, Jr. et al. (US Pat. 6,213,596) in view of Seiji et al (JP01120353A) and Mochizuki et al (US 6,685,296).

Nowell, Jr. et al disclose in Figure an ink supply system (10) comprising:

- an ink jet head (12) that discharges supplied ink from a nozzle;
- a deaeration device (28) that deaerates dissolved gas from the ink supplied to the ink jet head (12);
- an ink reservoir (46) that is provided in an ink channel (36, 42, 50) between the deaeration device (28) and the ink jet head (12); and
- wherein the ink level in the ink reservoir (46) is higher than the ink level in the nozzle of

the ink cartridge (12) so that the difference between the ink levels would provide a negative pressure for the nozzle due to the gravity force since.

However, Nowell, Jr. et al. do not disclose that the ink reservoir that a preventative member is floated on the surface of ink in the ink reservoir to prevent contact between the ink and air; wherein the preventative member is plural balls or a plate.

Nevertheless, Seiji suggests in Figure 1 a detection float (3) in a polymer material which covers whole liquid surface of the ink (2) and floating on the ink surface of an ink tank (1) to detecting ink level. Since the float is made of polymer material it prevents the contact between the ink and air.

Mochizuki et al suggests in Figures 1-2 an ink tank (701, 805) including a floating plate (703, 704) or a floating ball (804) which are floating on the ink surface for detecting the ink residual, see lines 32-65, column 1.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Brooks et al. in the cartridge of Nowell, Jr. et al for the purpose of maintaining a desired negative pressure level in nozzles to and employing the float suggested by Seiji et al or the floating plate and the floating ball suggested by Mochizuki et al in the cartridge of Nowell, Jr. et al for the purpose of sensing the ink level of the ink tank so that the ink tank would be refilled or the operation of the printing system would be stopped.

Although Mochizuki et al suggests using one floating balls to detect the residual ink; however, a skilled artisan realizes that more floating balls can be used to enhance the detection. Thus, employing more floating balls in the ink tank of Mochizuki et al is considered to be a matter of a design expedient for an engineer depending upon a particular application. Lacking of showing any criticality, it would have been obvious at the time the invention was made to

employ more floating balls in the ink tank of Nowell, Jr. et al for the purpose of enhancing the detection of residual ink so that the ink cartridge can be replaced.

Response to Applicant's Arguments

The applicant argue that Nowell, Jr. et al does not disclose that the level of surface of the ink in the ink reservoir is different from a level of the nozzle such that negative pressure is applied to the ink in the nozzle. The argument is not persuasive because the ink surface of the ink reservoir (46) is higher than the ink surface of the tank (16), the difference of ink level between the ink surfaces create a negative pressure on the ink in the nozzle that enable ink to draw the ink from the ink tank (46) to the ink tank (16) to the nozzle due to the gravity force.

The applicant argues that the balls (20) of Altendorf is not used to prevent contact between the air and fluid. The argument is persuasive. However, the floating balls is suggested in the Seiji reference as stated above.

CONCLUSION

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2861

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo. whose telephone number is (571) 272-2262.

The examiner can normally be reached on Tuesday to Friday from 9:00 A.M. to 7:00 P.M.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 273-8300.

A handwritten signature in black ink, appearing to read 'Anh T.N. Vo', with a long, sweeping horizontal stroke extending to the right.

ANH T.N. VO
PRIMARY EXAMINER

November 9, 2005